Page 2

PAGE 02

Application No.: 10/535,340

Art Unit: 3611

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1. (currently amended) A device that moves along the surface of an object situated in a gas, comprising a stereoshaped first region having an annular surface A and a stereoshaped second region situated inside the surface A and having a surface B, wherein the surface A is a boundary surface between the surface of the object and the first region and the surface B is a boundary surface between the surface of the object and the second region, the portion defining the outer boundary of the surface A is provided with an outer seal member, the portion defining the inner boundary of the surface A is provided with an inner seal material, the first region is connected to a gas suction means that sucks a gas from within the first region, the second region is connected to a liquid supply means which supplies a liquid to the second region, the first region is positioned downstream of a gas surrounding the surface of the object, the first region and the second region, the first region is positioned downstream of the second region, portion of the liquid supplied to the second region that exceeds the cubic volume of the second region, i.e., the liquid flowing downstream from the second region, reaches the first region and is subsequently transported to the suction means by riding the flow of the gas being sucked away from the first region.
- 2. (original) A device that moves along the surface of an object described in Claim 1, having a pressure adjustment means that adjusts the pressure of the second region to any designated pressure.

Art Unit:

Application No.: 10/535,340

3611

Page 3

3. (original) A device that moves along the surface of an object having the pressure adjustment-means that adjusts the pressure of the second region to any designated pressure, i.e., a method of obtaining the optimum pressure for each of various applications of this invention, as described in Claim 2, such pressure adjustment means comprising an upstream side valve chest connected to a liquid supply pump, a downstream side valve chest connected to the second region, a valve opening connecting the upstream side valve chest and the downstream side valve chest, a valve that opens and closes the valve opening and a valve-operating means that causes the valve to open and close, so configured that the pressure of the second region is adjusted to any designated pressure by way of the valve being opened or closed due to the pressure difference between the actual pressure of the second region and any designated pressure set as the pressure adjustment goal.

- 4. (original) A device that moves along the surface of an object having the valve-operating means described in Claim 3, such valve-operating means being so configured that, where Fc is the force of the liquid inside the upstream side valve chest that acts on the valve and in the direction of the valve and Fb is the force of the liquid inside the downstream side valve chest that acts on the valve and in the direction of the valve, wherein the configuration of the valve-operating means that opens and closes the valve causes a force of the same strength as Fc and in the opposite direction from Fc to act on the valve, and causes a force Fx in the opposite direction from Fb and corresponding to the goal value of pressure adjustment to act on the valve, the valve opens when Fb < Fx and the valve closes when Fb > Fx.
- 5. (original) A device that moves along the surface of an PAGE 3/8 * RCVD AT 12/28/2009 2:45:47 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/13 * DNIS:2738300 * CSID:7036841390 * DURATION (mm-ss):02-44

Art Unit: 3611

Page 4

Application No.: 10/535,340

closes when Fb + Fs >Fo.

object having the valve-opening means described in Claim 3, such valve-operating means being so configured that, where Fc is the force of the liquid inside the upstream side valve chest that acts on the valve and in the direction of the valve and Fb is the force of the liquid inside the downstream side valve chest that acts on the valve and in the direction of the valve, wherein the configuration of the valve-operating means that opens and closes the valve causes a force of the same strength as Fc and in the opposite direction from Fc to act on the valve, causes a force Fo attributable to atmospheric pressure or a force Fo attributable to the pressure of a gas surrounding the surface of an object, the first region and the second region to act on the valve and in the opposite direction from Fb, and causes a force Fs of an elastic body, such as a spring, to act on the valve and in the same

6. (original) A device that moves along the surface of an object described in Claims 1 through 5 and having a means that emits ultrasonic waves or a means that receives ultrasonic waves or both of the means at the second region.

direction as Fb, the valve opens when Fb + Fs < Fo and the valve

- 7. (original) A device that moves along the surface of an object described in Claims 1 through 5 and having a means that generates cavitation at the second region.
- 8. (original) A device that moves along the surface of an object described in Claims 1 through 7 and having a means that measures the quantity of the liquid supplied to the second region Q by unit time, the absolute pressure Pa of the first region and the absolute pressure Pb of the second region and calculates values that are equivalent to the aggregate volume of voids existing on

Page 5.

Application No.: 10/535,340

Art Unit: 3611

the surface of an object based on Q, Pa and Pb.

- 9. (original) A device that moves along the surface of an object described in Claims 1 through 8 and having a differential pressure control valve between the first region and the second region so configured that the differential pressure control valve opens when the absolute pressure of the second region minus the absolute pressure of the first region exceeds a certain designated pressure value, allowing the fluid to flow from the second region to the first region, and the differential pressure control valve closes when the absolute pressure of the second region minus the absolute pressure of the first regions returns to the designated pressure value.
- 10. (original) A device that moves along the surface of an object described in Claims 1 through 9 and having wheels or link belts for allowing the first region and the second region to move along the surface of the object.
- 11. (original) A device that moves along the surface of an object described in Claims 1 through 10 wherein the outer seal member has a self-sealing shape whereby the outer seal member is pressed against the surface of the subject by the pressure of the gas outside the outer seal member, and the inner seal member has a self-sealing shape whereby it is pressed against the surface of the object by the pressure of the liquid in the second region.

. 12-14. (cancelled)

15. (original) A device that moves along the surface of an object described claim 7 and having a means that measures the quantity of the liquid supplied to the second region Q by unit time,

Application No.: 10/535,340

Page 6

Art Unit: 3611

the absolute pressure Pa of the first region and the absolute pressure Pb of the second region and calculates values that are equivalent to the aggregate volume of voids existing on the surface of an object based on Q, Pa and Pb.

- object described in claim 7 and having a differential pressure control valve between the first region and the second region so configured that the differential pressure control valve opens when the absolute pressure of the second region minus the absolute pressure of the first region exceeds a certain designated pressure value, allowing the fluid to flow from the second region to the first region, and the differential pressure control valve closes when the absolute pressure of the second region minus the absolute pressure of the second region minus the absolute pressure of the first regions returns to the designated pressure value.
- 17. (original) A device that moves along the surface of an object described in claim 7 and having wheels or link belts for allowing the first region and the second region to move along the surface of the object.
- 18. (original) A device that moves along the surface of an object described in claim 7 wherein the outer seal member has a self-sealing shape whereby the outer seal member is pressed against the surface of the subject by the pressure of the gas outside the outer seal member, and the inner seal member has a self-sealing shape whereby it is pressed against the surface of the object by the pressure of the liquid in the second region.